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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Patrick G. Burns, Esq.
GREER, BURNS & CRAIN, LTD.
Suite 2500
300 South Wacker Dr.
Chicago, IL 60606

EXAMINER

ZEADE, BERTRAND

ART UNIT

PAPER NUMBER

2875

DATE MAILED: 04/28/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/092,167

Applicant(s)

MAEDA ET AL.

Examiner

Bertrand Zeade

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 March 2002.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

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DETAILED ACTION

Claim Rejections - 35 U.S.C. § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 2,4,6,8,10,12,,14,16,18,20,22,24,26,28, 30 are rejected under 35 U.S.C. 102(b) as being anticipated by Fukui et al. (U.S.6,068,382).

Fukui ('382) discloses a panel form illuminating system having:

Regarding claim 2, a light source (4) for emitting light, and a linear photoconductor (1) for reflecting the light incident (see fig. 3) on a plurality of light reflection portions (11) formed on a reflection side from the light source (4), and causing the light to exit linearly from an exit side or top surface (15) opposed to the reflection side (11), planes of the plural light reflection portions or inclined surface (12) are respectively tilted so that the light (4) exit substantially vertically to the longitudinal direction of the linear photoconductor (1).

Regarding claim 4, the plural light reflection portions (12,13) are same V-shaped grooves one planes of which are the planes of the light reflection portions (see figs. 6-7, 25).

Regarding claim 6, the linear photoconductor (1) is longitudinally divided in a plural regions; and in each divided region, the planes (11) of the plural light reflection portions (12, 13, 25) are tilted at the same angle.

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Regarding claim 8, the planes (11) of the plural light reflection portions (12, 13, 25) are tilted at the same angles in a region containing the center of the linear photoconductor (1) and in the regions near the ends of the linear photoconductor (see figs. 1-4b, 12, 13, 25).

Regarding claim 10, in a first longitudinally divided region (see figs. 19a-19c, 25,28) of the linear photoconductor (101), the planes (11) of the light reflection portions (12,105) are tilted equally at a first angle; in a second region adjacent to the first region, the planes (11) of the light reflection portions (12,105) are tilted equally at a second angle which is different from the first angle; and in a region near the border between the first region and the second region, the light reflection portions having the planes (11) tilted at the first angle and the light reflection portions having the planes tilted at the second angle are mixed (see figs. 19a-19c, 25,28)

Regarding claim 12, the linear photoconductor (1,101) are divided in a plurality of regions vertically to the longitudinal direction; and in each divided region, the planes (11) of the plural light reflection portions (12 , 36, 105) are tilted at the same angle (see figs. 19a-19c, 25,28).

Regarding claim 14, the light reflection portions (12 , 36, 105) are extended obliquely to the longitudinal direction of the linear photoconductor (1/101).

Regarding claim 16, the planes of the plural light reflection portions (12 , 36, 105) are respectively tilted at angles which cause the light emitted substantially from the center of the light source to exit substantially vertically to the longitudinal direction of the linear photoconductor (1/101).

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Regarding claim 18, a surface photoconductor (1) optically coupled to the linear photoconductor (1) , for causing the light entering from the linear photoconductor to exit in plane (see figs. 24,28,33).

Regarding claim 20, the linear photoconductor (1) has the reflection (12) side curved (see figs. 19a-19b).

Regarding claim 22, a width of one planes (11) of the light reflection portions (12), and a width of the other planes of the light reflection portions (12) are different from each other (see figs. 19a-19b).

Regarding claim 24, a reflection coat film (34) is further formed on the reflection side of the linear photoconductor (33).

Regarding claim 26, the reflection means (33) provided on the reflection side of the linear photoconductor (33) separately from the linear photoconductor (1/33).

Regarding claim 28, the linear photoconductor is formed substantially in a square pole.(see fig. 30).

Regarding claim 30, a lighting apparatus including a light source (4) for emitting light, a linear photoconductor (1/33) for reflecting light incident on the plurality of light reflection portions (12 , 36, 42,105) formed on the reflection side from the light source (4) and causing the light (4) to exit linearly from the exit side opposed to the reflection side, and a surface photoconductor (1/33) optically coupled to the linear photoconductor (1/33) and causing the light (4) entering from the linear photoconductor (1/33) to exit in the plane (11); and a liquid crystal

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display panel illuminated by the lighting apparatus (see fig. 27), planes of the plural light reflection portions (12 , 36, 42,105) being tilted angles which cause the light (4) to exit substantially vertically to the longitudinal direction of the linear photoconductor (1/33).

Claim Rejections - 35 U.S.C. § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29 are rejected under 35 U.S.C.

103(a) as being unpatentable over Fukui ('054) in view of Epstein (U.S.5,894,539).

Fukui ('054) discloses a panel form illuminating system having:

Regarding claim 1, a light source (4) for emitting light, and a linear photoconductor (1) for reflecting the light incident (see fig. 3) on a plurality of light reflection portions (11) formed on a reflection side from the light source (4), and causing the light to exit linearly from an exit side or top surface (15) opposed to the reflection side (11), planes of the plurality of light reflection portions or inclined surface (12) being tilted at angles which converge the light (figs. 3, 7, 10, 13-15, 19-32b).

Regarding claim 3, the plural light reflection portions (12,13) are same V-shaped grooves one planes of which are the planes of the light reflection portions (see figs. 6-7, 25).

Regarding claim 5, the linear photoconductor (1) is longitudinally divided in a plural

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regions; and in each divided region, the planes of the plural light reflection portions (11, 12, 13, 25) are tilted at the same angle.

Regarding claim 7, the planes (11) of the plural light reflection portions (12, 13, 25) are tilted at the same angles in a region containing the center of (12, 13, 25) the linear photoconductor (1) and in the regions near the ends of the linear photoconductor (1).

Regarding claim 9, a first longitudinally divided region of the linear photoconductor (1), the planes (11) of the light reflection portions (6-7, 12, 13, 25) are tilted equally at a first angle; in a second region adjacent to the first region (see figs. 1-4b, 12, 13, 25), the planes (11) of the light reflection portions (6-7, 12, 13, 25) are tilted equally at a second angle which is different from the first angle; and in a region near the border between the first region and the second region, the light reflection portions having the planes tilted at the first angle and the light reflection portions having the planes tilted at the second angle are mixed (see figs. 1-4b, 12, 13, 25).

Regarding claim 11, the linear photoconductor (1,101) are divided in a plurality of regions vertically to the longitudinal direction; and in each divided region, the planes (11) of the plural light reflection portions are tilted at the same angle (see figs. 19a-19c, 25,28).

Regarding claim 13, the light reflection portions (12, 36, 105) are extended obliquely to the longitudinal direction of the linear photoconductor (1/101).

Regarding claim 17, a surface photoconductor (1) optically coupled to the linear photoconductor (1), for causing the light entering from the linear photoconductor (1) to exit in plane (see figs. 24,28,33).

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Regarding claim 19, the linear photoconductor (1) has the reflection (12) side curved (see figs. 19a-19b).

Regarding claim 21, a width of one planes (11) of the light reflection portions (12), and a width of the other planes of the light reflection portions (12) are different from each other (see figs. 19a-19b).

Regarding claim 23, a reflection coat film (34) is further formed on the reflection side of the linear photoconductor (33).

Regarding claim 25, the reflection means (33) provided on the reflection side of the linear photoconductor (33) separately from the linear photoconductor (1/33).

Regarding claim 27, the linear photoconductor is formed substantially in a square pole.(see fig. 30).

Regarding claim 29, a lighting apparatus including a light source (4) for emitting light, a linear photoconductor (1/33) for reflecting light incident on the plurality of light reflection portions (12 , 36, 42,105) formed on the reflection side from the light source (4) and causing the light (4) to exit linearly from the exit side opposed to the reflection side, and a surface photoconductor (1/33) optically coupled to the linear photoconductor and causing the light (4) entering from the linear photoconductor (1) to exit in the plane (11); and a liquid crystal display panel illuminated by the lighting apparatus (see fig. 27), planes (11) of the plural light reflection portions (12 , 36, 42,105) being tilted at an angle which converges the light.

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Fukui ('054) does not disclose a human eye.

Regarding claims 1, 29, Epstein (U.S.5,894,539) discloses in (figs. 1-2) a light source (22) to the human eye or viewer (25) watching.

Regarding claim 15, the planes (figs. 1-7) of the plural light reflection portions (see figs. 6-7) are respectively tilted at angles which converge the light emitted substantially from the center of the light source (22) to the human eye or viewer (25) watching.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the panel form illuminating system of Fukui ('054) with the human eye disclosed by Epstein (539) for the benefit and advantage to provide a light transmitted to the display, thereby increasing the amount of light available to the viewer or human eye, because the light rays travel through the display once are reflected by the reflector back through the display a second time, exit the film, and proceed toward the viewer at angles ranging from 0 degree to 30+ degrees.

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Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bertrand Zeade whose telephone number is 703-308-6084. The examiner can normally be reached on Monday-Friday from 8:00 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sandra O'Shea, can be reached on (703) 305-4939. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9318.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

Examiner: Bertrnad Zeade

March 4, 2003.


Sandra O'Shea
Supervisory Patent Examiner
Technology Center 2800